

Flame Spread Index of APA Performance-Rated Wood Structural Panels

Tests conducted for APA – *The Engineered Wood Association* by an accredited independent fire laboratory in 2016 demonstrated that APA-trademarked wood structural panels, which include plywood conforming to U.S. Product Standard PS 1, *Structural Plywood*, or PS 2, *Performance Standard for Wood Structural Panels*, and oriented strand board (OSB) conforming to PS 2, have a flame spread index (FSI) in the range of 35 to 110 and a smoke-developed index (SDI) in the range of 50 and 175 when tested in accordance with ASTM E84, *Standard Test Method for Surface Burning Characteristics of Building Materials*, or UL 723, *Test for Surface Burning Characteristics of Building Materials*, as shown in Table 1. These test results updated the data obtained from the earlier editions of referenced standard test methods. In accordance with the International Building Code (IBC), interior wall and ceiling finish materials shall be classified based on the FSI and SDI obtained from ASTM E84 or UL 723 tests as follows:

- Class A: Flame spread index 0 – 25; smoke-developed index 0 – 450
- Class B: Flame spread index 26 – 75; smoke-developed index 0 – 450
- Class C: Flame spread index 76 – 200; smoke-developed index 0 – 450

TABLE 1

FLAME SPREAD INDEX (FSI) AND SMOKE-DEVELOPED INDEX (SDI) FOR WOOD STRUCTURAL PANELS TESTED IN ACCORDANCE WITH ASTM E84 (UL 723)

Performance Category	Flame Spread Index (FSI)	Flame Spread Class	Smoke-Developed Index (SDI)
Oriented Strand Board (OSB) in Compliance with U.S. DOC PS 2			
3/8	100	C	95
15/32	100	C	80
23/32	100	C	60
1-1/8	110	C	115
Structural Plywood (Douglas-fir) in Compliance with U.S. DOC PS 1 or PS 2			
1/4	85	C	70
3/8	65	B	60
15/32	40	B	50
23/32	35	B	55
Structural Plywood (Southern Pine) in Compliance with U.S. DOC PS 1 or PS 2			
11/32	75	B	115
15/32	95	C	135
23/32	65	B	175

Previous ASTM E84 test results also showed that APA Rated OSB Siding products with a medium density phenolic paper overlaid face (pre-primed) and grooved surface pattern have a flame spread index within the Class C range. Therefore, all of these APA-trademarked panel products can be used as interior finish in rooms or other areas in most building occupancies where Class C materials are permitted for use in construction.

There are exceptions where Class A or B interior finish materials are required, depending on the occupancy classification, sprinkler installation and location in the building. Where Class A interior finish materials are required, fire retardant treated plywood can be used. See Table 803.13 of the 2018 IBC for more information. It is important to note that the Table 803.13 requirements apply only to the interior finish and would have no effect on the use of wood structural panel products for roof sheathing, subfloor, single floor (APA Sturd-I-Floor) or exterior wall sheathing. American Wood Council (AWC) DCA1 provides the FSI and SDI data for other wood products (www.awc.org/codes-standards/publications/dca1).

In Canada, the test method and flame-spread rating recognized in the National Building Code (NBC) is different from those adopted by the IBC in the U.S. See APA Technical Topics TT-108, *Flame-Spread Rating for Oriented Strand Board in Canada*, for more information.

We have field representatives in many major U.S. cities and in Canada who can help answer questions involving APA trademarked products. For additional assistance in specifying engineered wood products, contact us:

APA HEADQUARTERS: 7011 So. 19th St. ■ Tacoma, Washington 98466 ■ (253) 565-6600 ■ Fax: (253) 565-7265

APA PRODUCT SUPPORT HELP DESK: (253) 620-7400 ■ E-mail: help@apawood.org

DISCLAIMER: *The information contained herein is based on APA – The Engineered Wood Association’s continuing programs of laboratory testing, product research, and comprehensive field experience. Neither APA nor its members make any warranty, expressed or implied, or assume any legal liability or responsibility for the use, application of, and/or reference to opinions, findings, conclusions, or recommendations included in this publication. Consult your local jurisdiction or design professional to assure compliance with code, construction, and performance requirements. Because APA has no control over quality of workmanship or the conditions under which engineered wood products are used, it cannot accept responsibility for product performance or designs as actually constructed.*

© 2020 APA – The Engineered Wood Association

Form No. TT-010C

Issued July 2020

